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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,968	09/23/2003	Masahiro Sato	50395-228	7890

20277 7590 04/14/2005

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EXAMINER

KIANNI, KAVEH C

ART UNIT PAPER NUMBER

2883

DATE MAILED: 04/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

Office Action Summary	Application No.	Applicant(s)	
	10/667,968	SATO, MASAHIRO	
	Examiner	Art Unit	
	Kianni C. Kaveh	2833	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 8, 9 and 11-13 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

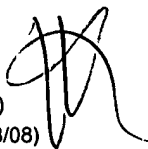
Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 5.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.



DETAILED ACTION

Allowable Subject Matter

Claims 4-5, 7 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claim 4 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious a chip carrier mounted on the secondary surface of the driver, the light-receiving device being mounted on the chip carrier in combination with the rest of the limitations of the base claim.

Claims 5 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious the light-receiving device being optically coupled to the second surface of the light-emitting device through the light-reflecting surface of the optical device in combination with the rest of the limitations of the base claim.

Claim 7 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the light-receiving semiconductor device is mounted on the secondary surface of the driver in a configuration that the light-sensitive surface faces to the secondary surface of the driver in combination with the rest of the limitations of the base claim.

Claim 10 is allowable because the prior art of record, taken alone or in combination, fails to disclose or render obvious wherein the bench further comprises a second groove

between the second region and the third region in combination with the rest of the limitations of the base claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 6, 8-9 and 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamabayashi et al. (US 6575641).

Regarding claims 1 and 3, Yamabayashi teaches an optical module (shown in at least fig. 22), comprising:

a light-emitting device 4 having a first surface and a second surface, the light-emitting device emitting light (see figure 24, item emitting light LD 34);

a driver 40 electrically connected to the light-emitting device 4 for driving the light-emitting device (see fig. 2, item LD and IC),

the driver 40 having a primary surface (surface opposing to item 76; wherein substrate 31 considered to be the top part of the module) and a secondary surface opposing to the primary surface (surface adjacent to item 76);

a light-receiving device 58 for receiving light emitted from the second surface of the light-emitting device 34 and passed through a space above the secondary surface of the driver (the surface adjacent to item 76); and

a bench 31 having a first region and a second region, the light-emitting device 34 being mounted on the second region and the driver 40 being mounted on the first region, wherein a level of the first region of the bench is lower than a level of the second region of the bench (see at least figure 24, wherein considering substrate 31 as the top part of the module, the level of the first region where the IC 40 is mounted is lower than that of the second region where LD is mounted; also see col. 4, 3rd parag. in which Yamabayashi states that these arrangement are also as matter of one of skilled design choice); wherein a plurality of electrodes 45-48 of the driver 40 is provided in the primary surface of the driver 40 and the driver 40 is mounted on the first region of the bench so that the primary surface of the driver faces to the first region (shown in at least fig. 23, items 45-48).

However, Yamabayashi does not explicitly teach wherein the above light-emitting device and/or light receiving device are of semiconductor device and that the above mounting is implemented using a flip-chip technique. Nevertheless, Yamabayashi states that the light-emitting device and/or light receiving device are laser diode LD (light emitting Diode) and photo-diode, respectively. It is obvious/well-known to those of ordinary skill in the art when the invention was made that the LD's and PD's are of semiconductor devices and/or the use of such devices are conventionally used and that the chip IC 97 48 is flipped, so as its primary surface is facing the first region, and/or being mounted using conventional flip-chip technique, since the usage and/or arrangement of such devices would reduce signal distortions and signal delay (see col. 5, 3rd parag.).

Regarding claims 2, 6 and 8-9, and 11-13, Yamabayashi further teaches wherein the level of the second region of the bench is higher than a level of the secondary surface of the driver (wherein considering the substrate 31 as the top part of the module, the level of the second region of the bench is higher than a level of the secondary surface of the driver 40); wherein the light-receiving device PD has a light-incident surface inactive to the light emitted from the light-emitting LD device and a light-sensitive surface, the light-incident surface facing to the second surface of the light-emitting device and the light-sensitive surface crossing the light-incident surface (see at least fig. 22-23, wherein PD's has active/light-sensitive surface 37--see such item 37 in fig. 24—and surrounding surface as light-incident surface inactive to light); an optical fiber 35 having a tip facing to the light-emitting device 34 for receiving the light emitted from the first surface of the light-emitting device 34; wherein the bench 31 further comprises a third region and a fourth region, the regions from the first to the fourth being arranged along a predetermined direction, the third region of the bench 31 having a first groove 33 parallel to the predetermined direction for setting the optical fiber therein (shown in fig. 22, item groove 33 in the third region and PD in the 4th region); wherein the bench is made of an insulator/si 31; wherein the light-emitting device, the light-receiving device, and the tip of the optical fiber are encapsulated by a resin transparent to the light emitted from the light-emitting device (see at least col. 4, 5th parag.).

Citation of Relevant Prior Art

Prior art made of record and not relied upon is considered pertinent to applicant's disclosure. In accordance with MPEP 707.05 the following references are pertinent in rejection of this application since they provide substantially the same information disclosure as this patent does. These references are:

Nakanishi et al. 6374021

Nakanishi et al. 2003/0169981

Kuhara et al. 2003/0151121

Kwon et al. 6190056

Nakanishi et al. 2003/0002820

Yamabayashi et al. 6575641

These references are cited herein to show the relevance of the apparatus/methods taught within these references as prior art.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Cyrus Kianni whose telephone number is (571) 272-2417.

The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 6:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font, can be reached at (571) 272-2415.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9306 (for formal communications intended for entry)

or:

Art Unit: 2833

Hand delivered responses should be brought to Crystal Plaza 4, 2021 South Clark Place, Arlington, VA., Fourth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application should be directed to the Group Receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'K. Kianni', with a long horizontal flourish extending to the right.

K. Cyrus Kianni
Patent Examiner
Group Art Unit 2883

April 11, 2005